

What is claimed is:

1. A compressor control system for an air conditioner of a vehicle, the vehicle includes:

a driving electric motor for driving the vehicle;

a main battery for supplying electric power of a high voltage to the driving electric motor; and

a driving electronic control unit which has at least one of a function for controlling operation of an electric actuator driven when being applied with the high voltage of the main battery, a function for controlling a drive-power switching of the vehicle between the driving electric motor and an engine of the vehicle and a function for controlling a charge and a discharge of the main battery, the compressor control system comprising:

a compressor which is provided in a refrigerant cycle of the air conditioner for performing air-conditioning in a vehicle compartment; and

a compressor electric motor for driving the compressor, wherein the compressor electric motor has a rotation speed that is controlled by the driving electronic control unit.

2. The compressor control system according to claim 1, further comprising

an air-conditioning electronic control unit to which an air-conditioning signal relevant to the air-conditioning is inputted, wherein:

the air-conditioning electronic control unit controls

operation of the air conditioner based on the air-conditioning signal; and

the air-conditioning electronic control unit is provided to communicate with the driving electronic control unit.

3. The compressor control system according to claim 2, wherein the air-conditioning electronic control unit communicates with the driving electronic control unit through a local area network of the vehicle.

4. The compressor control system according to claim 2, wherein

the air-conditioning electronic control unit has at least one of a function for calculating a target temperature of conditioned air blown into the passenger compartment, a function for determining a blowing amount of the conditioned air, a function for determining an air-outlet mode of the conditioned air and a function for determining an air-suction mode.

5. The compressor control system according to claim 2, wherein:

the air-conditioning electronic control unit calculates a target rotation speed of the compressor electric motor based on the air-conditioning signal and outputs a signal representing the target rotation speed to the driving electronic control unit; and

the driving electronic control unit controls the rotation speed of the compressor electric motor based on the signal representing the target rotation speed.

6. The compressor control system according to claim 1, wherein the driving electronic control unit includes

a determining means, for determining whether a vehicle condition is in a restriction condition where the rotation speed of the compressor needs to be restricted.

7. The compressor control system according to claim 6, wherein the restriction condition is at least one of an overloading state of a vehicle running load and an over-discharging state of the main battery.

8. The compressor control system according to claim 1, further comprising

a compressor inverter which is connected to a direct-current power source, and generates alternating-current voltage from an output of the direct-current power source to apply the alternating-current voltage to the compressor electric motor,

wherein the driving electronic control unit controls the rotation speed of the compressor electric motor through the compressor inverter.

9. The compressor control system according to claim 8,

wherein:

the compressor inverter outputs a feedback signal to the driving electronic control unit; and

the driving electronic control unit controls the rotation speed of the compressor electric motor based on the feedback signal.

10. A vehicle comprising:

a driving electric motor for driving the vehicle;

a main battery for supplying electric power of a high voltage to the driving electric motor;

a driving electronic control unit which has at least one of a function for controlling operation of an electric actuator driven when being applied with the high voltage of the main battery, a function for controlling a drive-power switching of the vehicle between the driving electric motor and an engine of the vehicle and a function for controlling a charge and a discharge of the main battery; and

an air conditioner for performing air-conditioning in a vehicle compartment, wherein:

the air conditioner includes a refrigerant cycle including a compressor for compressing refrigerant, and a compressor electric motor for driving the compressor; and

the driving electronic control unit controls a rotation speed of the compressor electric motor.

11. The vehicle according to claim 10, further

comprising

an air-conditioning electronic control unit to which an air-conditioning signal relevant to the air-conditioning is inputted, wherein:

the air-conditioning electronic control unit controls operation of the air conditioner based on the air-conditioning signal; and

the air-conditioning electronic control unit is provided to communicate with the driving electronic control unit.

12. The vehicle according to claim 11, wherein:

the air-conditioning electronic control unit calculates a target rotation speed of the compressor electric motor based on the air-conditioning signal and outputs a signal representing the target rotation speed to the driving electronic control unit; and

the driving electronic control unit controls the rotation speed of the compressor electric motor based on the signal representing the target rotation speed.